THE HANFORD SITE

100-KR-4 Groundwater Operable Unit Explanation of Significant Differences Overview

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Home Office Ergonomics

- Monitor at arm's length
- Web address bar at eye level
- Hands at or below elbow level
- Feet flat on the floor
- Thighs parallel to the floor
- Quick breaks every 20-30 minutes
  - Stand up, stretch
  - Look at something 20+ feet away for 20 seconds

Briefing Purpose

- Why are we briefing this topic
  - Supports continued groundwater cleanup efforts
  - Follow-up to briefing last year on soil flushing testing

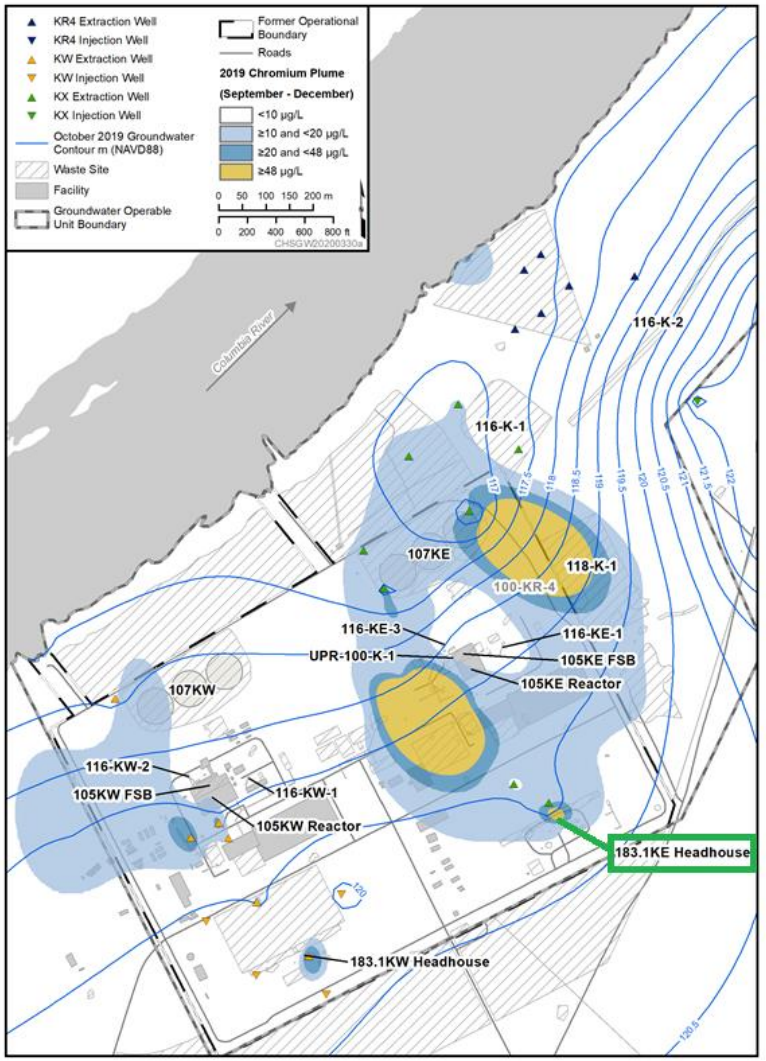
- What do we want the HAB to do with this information?
  - Update on groundwater remediation activities

Introduction

- An explanation of significant differences for the interim-action record of decision for the 100-KR-4 groundwater operable unit is planned for this summer
- Addresses two separate changes:
  - Adds soil flushing at the 183.1KE Headhouse area as an enhancement to the existing pump-and-treat remedy
  - Updates overall remedy cost
- Aligns with planning for a final record of decision for the 100 K Area, but allows soil flushing to be implemented sooner

Soil Flushing

- Process history and groundwater monitoring indicate a continuing source of hexavalent chromium contamination at the headhouse
- Soil flushing will use water application near the ground to push contamination to groundwater for remediation by existing pump-and-treat systems



Hexavalent chromium groundwater plumes (2019)

Soil Flushing (cont.)

- A soil flushing treatability test began in 2019 at the 183.1KW Headhouse
  - Effective in removal of residual hexavalent chromium
  - 38.13 lb of hexavalent chromium removed in seven months
  - 16.75 lb of hexavalent chromium removed in the preceding calendar year
- Conditions at the 183.1KE Headhouse are similar to those at the 183.1KW Headhouse
- Soil flushing will improve cost efficiency and accelerate the removal of hexavalent chromium contamination
- Without soil flushing, pump-and-treat operations could be necessary for 20 or more additional years

Treatability Test at 183.1KW Headhouse

April – May 2019

Distribution pipes and coverings

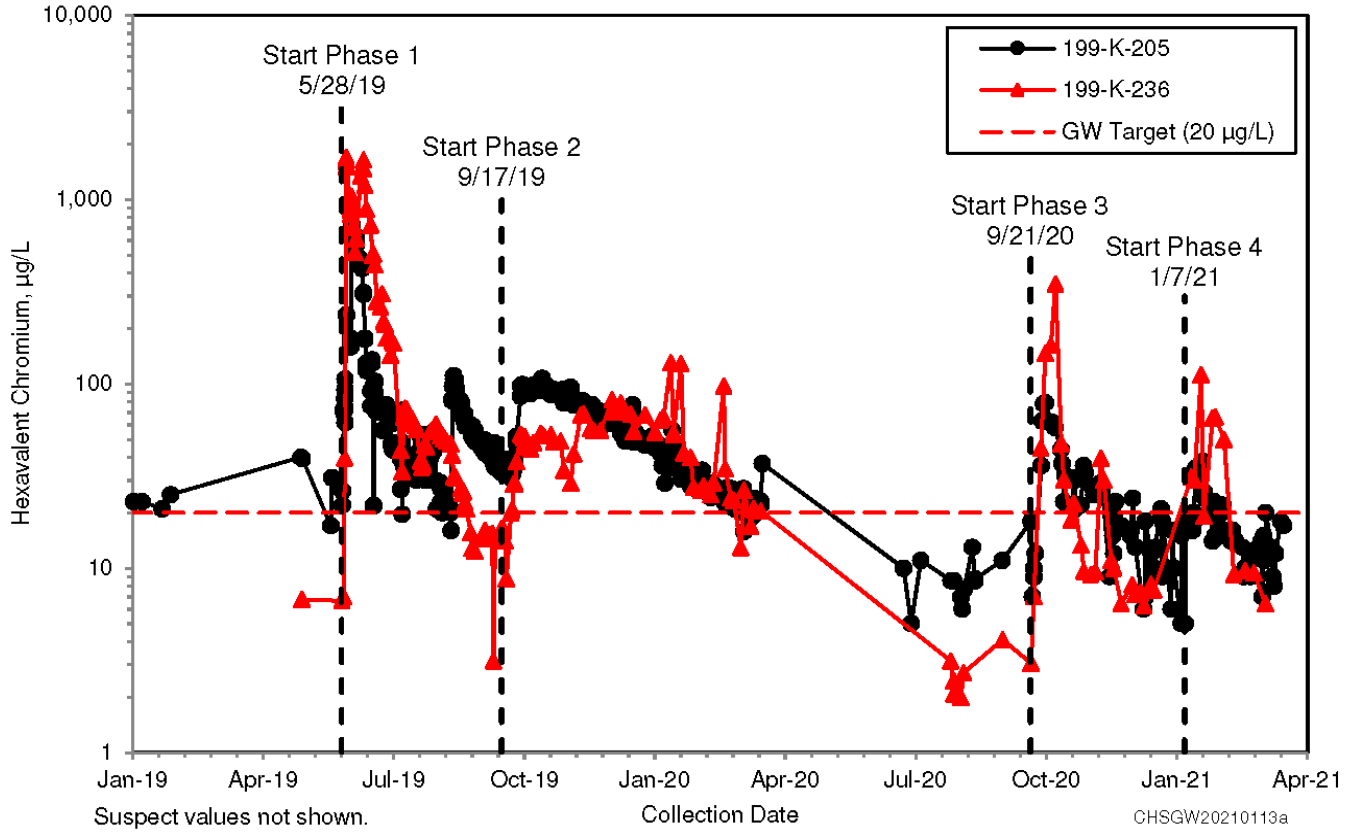
Valve box separating quadrants

Distribution lateral over obstruction

Injection well and leach field manifold

Hexavalent Chromium Concentrations During Treatability Test

Maximum concentrations in monitoring and extraction wells decreased across four testing phases



Hexavalent chromium groundwater concentrations during soil flushing treatability test

Update to Overall Remedy Cost

Explanation of significant differences also includes an increased overall remedy cost based on system expansions and expected remaining operating duration

- Includes costs incurred for operations through 2019
- Includes estimated costs through projected end of pump-and-treat operations (2032)
- Includes cost savings associated with soil flushing at the KE Headhouse

Update to Overall Remedy Cost (cont.)

1996: Interim-Action Record of Decision

Selected pump-and-treat remedy with costs for five years of initial pump-and-treat operations: $12.3 million

2009: Explanation of Significant Differences

Expanded pump-and-treat system and added estimated operating costs through 2012: $81.9 million

2021: Explanation of Significant Differences

Adds actual and estimated operating costs through projected end of pump-and-treat operations (2032): $240.7 million

Interface with Final Record-of-Decision Planning

- DOE and EPA are working on a remedial investigation and feasibility study to support a final record of decision for the 100 K Area
- Public review of a proposed plan is expected in 2022
- Soil flushing enhancement for the interim-action record of decision supports accelerated groundwater cleanup and aligns with final record-of-decision planning
- Operational duration used for the pump-and-treat system cost update is based on final record-of-decision planning

Interface with Final Record-of-Decision Planning (cont.)

100 K Area

Interim Action

100-KR-1 and 100-KR-2 Operable Units

- Amended Liquid Effluent Waste Sites Record of Decision
- Amended K Basins Record of Decision
- Burial Grounds Record of Decision
- Remaining Sites Record of Decision

100-KR-4 Operable Unit

- **Groundwater Record of Decision**

Final Record of Decision

Next Steps

- Explanation of significant differences is expected to be finalized by the end of fiscal year 2021. DOE will publish a notification of the final document and include it in the administrative record
- Remedial action work plan will be updated, subject to EPA review and approval
- Construction and start of flushing is expected to be implemented in 2022

Summary

- Treatability testing showed that soil flushing was effective in removing hexavalent chromium contamination at the 183.1KW Headhouse
- Explanation of significant differences allows for soil flushing at the 183.1KE Headhouse
- Supports accelerated groundwater cleanup